ATTACHMENT G: CONSTRUCTION DETAILS

Facility name: Archer Daniels Midland, CCS#2 Well
IL-115-6A-0001

Facility contact: Mr. Mark Burau, Plant Manager
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Well location: Decatur, Macon County, IL;
39º53'08", -89º53'19"

Open hole diameters and intervals

Name	Depth Interval (feet)	Open Hole Diameter (inches)	Comment
Surface	0-350	26	To bedrock
Intermediate	350-5,300	17 ½	To primary seal
Long	5,300-7,250	12 ¼	To Total Depth

Casing Specifications

Name	Depth Interval (feet)	Outside Diameter (inches)	Inside Diameter (inches)	Weight (lb/ft)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @ 77 ° F (BTU/ft.hr.°F)
Surface[1]	0-350	20	19.124	94	H40	Short	31
Intermediate[2]	0-5,300	13 3/8	12.515	61	K55 or J55	Long or Buttress	31
Long[3] (carbon)	0- ~5,000	9 5/8	8.835	40.0	N80	Long or Buttress	31
Long[3] (chrome)	~5,000 -~7,250	9 5/8	8.681	47.0	Chrome alloy	Special	16

Note 1: Surface casing will be 350 ft of 20 inch casing. After drilling a 26" hole to approximately 350' true vertical depth (TVD) or at least 50 ft into the bedrock below the shallow groundwater, 20", 94 ppf, H40, short thread and coupling (STC) casing will be set and cemented to surface. Coupling outside diameter is ~21 inches.

Note 2: Intermediate casing: 5,300 ft of 13 3/8 inch casing. After a shoe test or formation integrity test (FIT) is performed, a 17 1/2" hole will be drilled to approximately 5300' TVD or approximately 50' into the Eau Claire, the primary seal to the Mt. Simon. 13-3/8", 61 ppf, K55 or J55, long thread and coupling (LTC) or buttress thread and coupling (BTC) will be cemented to surface. Coupling outside diameter is ~14 3/8 inches.

Note 3: Long string casing: 0-5,000 ft of 9 ⅝ inch, N80 casing; ~5000' - ~7250' of 9 ⅝ inch, chrome alloy (e.g., 13Cr80). After a shoe test is performed and the integrity of the casing is tested, a 12 ¼" hole will be drilled to approximately 7500' TVD or through the Mt. Simon, where the long string casing will be run and specially cemented. Coupling outside diameter is 10 ⅝ inches for N-80 and 10.485 inches for the chrome alloy (e.g., 13Cr80).

Tubing Specifications

Name	Depth Interval (feet)[1]	Outside Diameter (inches)	Inside Diameter (inches)	Weight (lb/ft)	Grade (API)	Design Coupling (Short or Long Thread)	Burst strength (psi)	Collapse strength (psi)
Injection tubing[2,3,4]	0-~7,000	4 ½	3.963	12.6	Chrome alloy	Special	8,960	7,820

Note 1: The tubing length will be finalized after the location of the perforations are selected and the packer location determined. The final tubing design may change subject to availability and/or pending results of reservoir analysis. The well casing design does allow for a larger tubing than 4 ½" if required.

Note 2: Maximum allowable suspended weight based on joint strength of injection tubing. Specified yield strength (weakest point) on tubular and connection is 306,000 lbs.

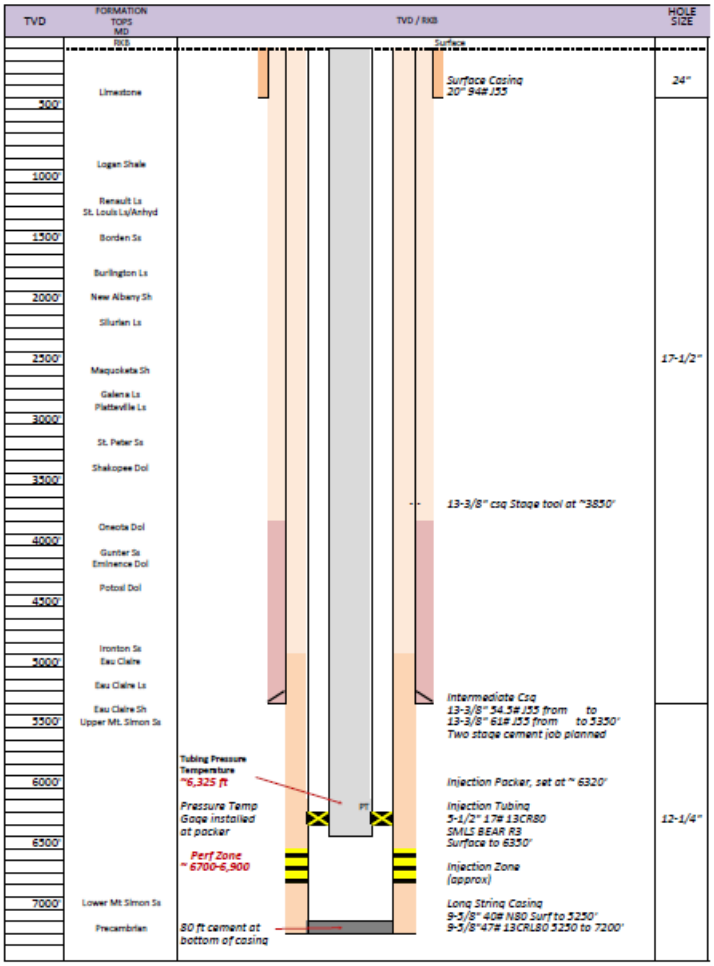
Note 3: Weight of expected injection tubing string (axial load) in air (dead weight) will be 88,200 lbs.

Note 4: Thermal conductivity of tubing @ 77°F will be 16 BTU / ft.hr.°F.

The injection well will be plugged back from the bottom with at least 80 feet of cement or a greater amount sufficient to prevent the injection fluid from coming in contact with the Precambrian granite basement. The figure below is a well construction schematic for CCS#2.

IL-ICCS CCS#2 Well Schematic

(depths are reference to the Kelley bushing = 694 ft above MSL)
KB = 17 ft above ground, site elevation = 677 ft above MSL



Pre-Injection Testing Plan

Deviation Checks

The subsurface and surface design (casing, cement, and wellhead designs) exceeds minimum requirements to sustain the integrity of the caprock to ensure CO_2 remains in the Mt. Simon. For reasons such as equipment or supply availability, or changes to the supplemental monitoring program, the final well design may vary but will meet or exceed requirements in terms of strength and CO_2 compatibility.

The wellbore trajectory of each of the deep wells for the IL-ICCS project (injection, verification, and geophysical wells) will be tracked. The wells will be drilled to an inclination standard that will eliminate the risk of interception with adjacent wellbores and surveyed at least every 1,000 feet of depth to ensure compliance. Wells are planned to be held to less than 5 degree inclination.

Tests and Logs
ADM will provide a schedule for all testing and logging to the permitting agency at least 30 days in advance of conducting the first such tests and/or logs.

During Drilling
Each open hole section (prior to setting each casing string) will be logged with multiple suites to fully characterize the geologic formations (reservoirs and seals). At a minimum, all wireline runs will have resistivity, spontaneous potential (SP), gamma ray (GR) and caliper logs. Sonic and porosity logs additionally will be included on the intermediate and TD run. The TD run will also include magnetic resonance, micro-imaging (dipmeter and fracture ID), formation pressure and rotary cores.

For the injection well, at least 90 feet of whole core are planned for the Eau Claire and the Mt. Simon. Additional core may be taken elsewhere in the well. Based on the open hole well logs, additional cores may be obtained using a sidewall rotary coring tool.

A Cement Bond Log (CBL) with radial capability and/or Ultrasonic Cement Imaging logs will be run on all casings strings with a possible exception for the surface casing. Due to the large surface casing size, a cement bond log with radial imaging may not be possible; however, a conventional CBL and temperature log can be run. Cement evaluation logs in very large casings typically can be ambiguous and are qualitative at best. The best indicator for good cement quality on the surface casing might be whether the cement is returned to surface with no fallback and if the surface casing shoe test is successful.

During and After Casing Installation
A baseline reservoir saturation tool (RST) and Temperature log will be run to be compared later with multiple passes during and after injection for detailed knowledge of where the CO_2 has moved vertically. Careful monitoring of the top of the Mt. Simon Sandstone formation, as well as the porous zones above the seal, will be used to confirm the integrity of the completion.

A Cement Bond Log with radial capability or Ultrasonic Cement Imaging logs with radial capability will be run on the intermediate and long string casings. Ultrasonic Imaging logs will provide casing thickness and internal radius baseline measurements in addition to cement evaluation data. Casing internal diameters will be initially baselined by running a multi-finger caliper (MFC) log in the long string casing prior to the well completion. Follow-up MFC logs in the long string casing can be run if the tubing is ever temporarily removed.

Based on previous analysis and results in the area, stimulation via hydraulic fracturing of the injection zone will not be required. The use of an acid to reduce perforation skin will be avoided if possible. An underbalanced perforating technique, either static or dynamic in nature will likely be utilized.

After the well is cased, at least one and possibly several, injectivity or pump tests may be performed to provide data for the reservoir modeling. Since injectivity testing is best analyzed in a single-phase fluid environment, the gauges would be placed near a perforated interval, and then several injections with pressure fall-off measurements can be performed. Several cycles of this

should give excellent measurements to model the ability of the reservoir to receive injectate. Also at this time, the step rate test can be performed. The final perforating scheme will be based on data interpretation and test results.

Demonstration of Mechanical Integrity

Cement and system mechanical integrity will be verified with cement imaging logs with a radial capability (e.g. Schlumberger Slim Cement Mapping Tool (SCMT), UltraSonic Imaging Tool (USIT), etc). Furthermore, mechanical integrity will be confirmed by pressure testing the casing (750 psig) prior to perforating, and after the packer is installed, the tubing/casing annulus will be pressure tested. All tests will be recorded. A successful test will be confirmed when casing pressure holds for one hour with less than 3% loss in pressure. As mentioned above, a baseline reservoir saturation tool (RST) log will be run. Repeat RST logs can be run if anomalous temperature data indicates a need for further analysis. Careful monitoring with temperature data across the top of the Mt. Simon Sandstone formation, as well as the porous zones above the seal, will be used (along with data from the verification well) to confirm the integrity of the completion.

Below is a Summary of the MITs and pressure fall-off tests to be performed prior to injection:

Class VI Rule Citation	Rule Description	Test Description	Program Period
[40 CFR 146.89(a)(1)]	MIT - Internal	Annulus Pressure Test	Prior to Operation
[40 CFR 146.87(a)(4)]	MIT - External	Temperature Log	Prior to Operation
[40 CFR 146.87(e)(1)]	Testing prior to operating	Pressure Fall-off Test	Prior to Operation